

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) -A fluid metering system comprising a fluid supply line and a flow meter for measuring fluid flow therethrough, said flow meter having a minimum measuring flow threshold; the system further comprising a flow responsive valve having an inlet port and an outlet port; said valve being shiftable between an open position to measure consumed flow rates, which are above the minimum measurable flow threshold, and a pulsating position, in which said valve is adapted either to prohibit fluid flow to the fluid supply line until a pressure differential over the valve ports is being built-up due to consumed flow rates, which occur below the measurable flow threshold or to admit fluid flow into the supply line until the pressure differential diminishes below a predetermined threshold, ~~wherein~~ said flow meter ~~[[is]]~~ adapted to measure the admitted fluid flow,

a. wherein portions of the supply line and devices fitted thereon, downstream of said pressure controlled valve, act as an in line fluid accumulator, and

b. wherein said valve has an open position admitting fluid flow only at a flow rate above the minimum measuring flow threshold, and a closed position substantially restricting fluid flow at flow rates below the measuring threshold, and is exclusive of an accumulator used for boosting fluid flow through the valve.

2. (original) The fluid metering system according to Claim 1, wherein the valve is a normally closed pressure controlled valve.

3. (original) The fluid metering system according to Claim 1, wherein the valve is fitted adjacent before or after the flow meter.

4. (original) The fluid metering system according to Claim 1, wherein the valve is integrated with the flow meter.

5. (canceled)

6. (original) The fluid metering system according to Claim 1, wherein the system is a liquid supply network.

7. (original) The fluid metering system according to Claim 6, wherein the system is a municipal water supply network.

8. (original) The fluid metering system according to Claim 1, wherein said valve is a flow responsive valve having an open position admitting fluid flow only at a flow rate above the minimum measuring flow threshold, and a closed position substantially restricting fluid flow at flow rates below the measuring threshold.

9. (original) The fluid metering system according to Claim 8, wherein said flow responsive valve is adapted to impart the system with a flow pattern having a pulsating character so as to substantially prohibit flow at a flow rate below the minimum measuring threshold, and resume flow of only measurable quantities of fluid.

10. (original) The fluid metering system according to Claim 9, wherein the flow responsive valve is shiftable between an open position whenever pressure differential over an inlet port and an outlet port thereof exceeds a minimum threshold, to thereby admit fluid flow at a flow rate above the minimum measuring flow threshold, and a closed position substantially prohibiting fluid flow therethrough.

11. (original) The fluid metering system according to Claim 1, wherein the valve is a one way valve, adapted to prevent flow in an upstream direction.

12. (currently amended) A method for metering fluid flow through a fluid supply line, said method comprising:

providing a flow meter for measuring fluid flow through the supply line, said flow meter having a minimum measuring flow threshold;

providing a valve having an inlet port and an outlet port;

measuring consumed flow rates, exclusive of use of an accumulator for boosting fluid flow through the valve, which are above the minimum measurable flow threshold, or

imparting the supply line with a flow pattern having a pulsating character in which said valve is adapted either to prohibit fluid flow to the fluid supply line until a pressure differential over the valve ports is being built due to consumed flow rates, which are below the measurable flow threshold or to admit fluid flow into the supply line until the pressure differential diminishes below a predetermined threshold, ~~and is exclusive of use of an accumulator for boosting fluid flow through the valve;~~

measuring the fluid flow with admitting thereof.

13. (original) The method for metering fluid flow according to Claim 12, wherein average fluid flow through the supply line is kept constant over time so long as flow rate fluctuations in the supply line are not acknowledgeable.

14. (original) The method for metering fluid flow according to Claim 12, comprising fitting said valve adjacent to or integrally with the flow meter.

15. (original) The method for metering fluid flow according to Claim 12, wherein portions of the supply line and devices fitted thereon, downstream of said valve, act as a fluid accumulator.

16. (currently amended) A valve comprising an inlet port connectable to an upstream side of a fluid supply line, and an outlet port connectable to a downstream side of the fluid supply line; said valve further comprising a housing with a control chamber extending between the inlet port and the outlet port and a sealing member disposed within said control chamber; said sealing member having an inlet sealing surface having a sealing surface area and a control portion having a control surface area; and a bleed aperture determining a minimal flow threshold through the control chamber; ~~wherein~~ the sealing member is displaceable between an open position and a closed position depending on a pressure differential over the sealing member, said valve adapted to prohibit fluid flow to the fluid supply line until a pressure differential over the valve ports is built up to a pressure differential due to consumed flow rates in the fluid supply line below the measurable flow threshold,

wherein said valve has an open position admitting fluid flow only at a flow rate above the minimum measuring flow threshold, and a closed position substantially restricting fluid flow at flow rates below the measuring threshold, and is exclusive of an accumulator used for boosting fluid flow through the valve.

17. (original) The valve according to Claim 16, being a normally closed flow responsive valve and wherein the sealing member is biased into sealing engagement with the inlet port.

18. (original) The valve according to Claim 17, wherein the sealing member is spring biased into sealing engagement with the inlet port.

19. (original) The valve according to Claim 17, wherein the sealing member is magnetically biased into sealing engagement with the inlet port.

20. (original) The valve according to Claim 19 wherein the sealing member comprises a ferromagnetic member and the housing is fitted with a fixed magnetic biasing member, to thereby bias the sealing member into sealing engagement with the inlet port.

21. (original) The valve according to Claim 20, wherein the sealing member is coated with a resilient material.

22. (original) The valve according to Claim 16, said valve is adapted to impart the fluid supply line with a pulsating fluid flow pattern, corresponding to the closed position or the open position of the sealing member, and wherein the valve is adapted to keep an average fluid flow through the supply line constant over time so long as flow rate fluctuations in the supply line are not acknowledgeable.

23. (original) The valve according to Claim 16, wherein the sealing surface area is less than the control surface area.

24. (original) The valve according to Claim 16, wherein the bleed aperture is an interstice between the housing and the control portion.

25. (original) The valve according to Claim 17, wherein the sealing member and the control chamber are configured and dimensioned so as to increase flow speed at a downstream

side of the sealing member when it is in the open position to thereby give rise to a force in a direction opposed to a sealing force acting on the sealing member.

26. (original) The valve according to Claim 24, wherein the sealing surface area is a cylindrical bore extending through the housing; the bore is formed with an expanded portion and the sealing member is formed with a tapering portion corresponding with the expanded portion.

27. (original) The valve according to Claim 16 being a one way valve, preventing flow in an upstream direction.

28. (currently amended) A flow responsive valve for a flow metering system comprising a supply line and a fluid meter having a minimum measuring flow threshold; said flow responsive valve having an inlet port and an outlet port and being shiftable between an open position to measure consumed flow rates, which are above the minimum measurable flow threshold, and a pulsating position in which the valve is adapted either to prohibit fluid flow to the fluid supply line until a pressure differential over the valve ports is being built due to consumed flow rates, which are below the measurable flow threshold or to admit fluid flow into the supply line until the pressure differential diminishes below a predetermined threshold,

wherein said valve has an open position admitting fluid flow only at a flow rate above the minimum measuring flow threshold, and a closed position substantially restricting fluid flow at flow rates below the measuring threshold, and is exclusive of an accumulator used for boosting fluid flow through the valve.

29. (original) The flow responsive valve according to Claim 28 which is adapted to alter between a closed state essentially prohibiting fluid flow therethrough at flow rates below the minimum measuring flow threshold, and an open state admitting fluid flow into the supply line at

a measurable flow rate above the minimum measuring flow threshold; said valve further comprising a suspension mechanism for delaying fluid flow through the valve at the open state.

30. (original) The flow responsive valve according to Claim 29, wherein the suspension mechanism comprises a pressure responsive sealing assembly comprising an axially displaceable plunger and a stationary cup member with a damping assembly received therebetween to dampen axial displacement of the plunger.

31. (original) The flow responsive valve according to Claim 30, wherein the damping assembly is received within a confined space and is provided with a sealing sleeve applied for restricting liquid flow into the confined space.

32. (original) The flow responsive valve according to Claim 30, wherein the pressure responsive sealing assembly further comprises a diaphragm seal retained within the housing and being deformable only in a downstream direction.

33. (currently amended) A flow responsive valve for a flow metering system comprising a supply line and a fluid meter having a minimum measuring flow threshold; said flow responsive valve having an inlet port and an outlet port and being shiftable between an open position to measure consumed flow rates, which are above the minimum measurable flow threshold, and a pulsating position in which the valve is adapted either to periodically prohibit fluid flow to the fluid supply line until a pressure differential over the valve ports is being built due to consumed flow rates, which are below the measurable flow threshold or to admit fluid flow into the supply line until the pressure differential diminishes below a predetermined threshold;

the valve adapted to alter between a closed state essentially prohibiting fluid flow therethrough at flow rates below the minimum measuring flow threshold, and an open state admitting fluid flow into the supply line at a measurable flow rate above the minimum measuring flow threshold exclusive of an accumulator used for boosting fluid flow through the valve; said valve further comprising a suspension mechanism for delaying fluid flow through the valve at the open state, ~~and is exclusive of use of an accumulator for boosting fluid flow through the valve,~~

wherein the suspension mechanism comprises a pressure responsive sealing assembly comprising an axially displaceable plunger and a stationary cup member with a damping assembly received therebetween to dampen axial displacement of the plunger, and,

wherein the plunger is provided with a circumferential peripheral adapted to displace against a cylindrical surface of the housing to thereby scrape it from dirt.

34. (original) The flow responsive valve according to Claim 30, wherein facing edges of the plunger and the stationary cup member have complimentary mating shapes.

35. (original) The flow responsive valve according to Claim 31, wherein the damping assembly comprises a biasing spring bearing at one end against the stationary cup member and at an opposed end against the plunger.

36. (original) The flow responsive valve according to Claim 32, wherein at a closed state thereof the plunger is retracted from the cup member and sealingly bears against the diaphragm seal, where liquid does not flow through the valve, and where the inlet pressure P_i is equal to the outlet pressure P_o .

37. (previously presented) The flow responsive valve according to Claim 32, wherein upon pressure differential built-up over the valve ports, the plunger is extractable downstream, followed by deformation of the diaphragm seal, to thereby open the valve.

38. (original) The flow responsive valve according to Claim 32, wherein disengagement of the diaphragm seal from the plunger results in further displacement of the plunger towards the stationary cup member, to thereby increase liquid flow through the valve, when it is in the pulsating position and at a measurable flow rate.

39. (original) The flow responsive valve according to Claim 32, wherein at the open state of the valve the plunger is displaceable until engagement with the stationary cup member thus facilitating liquid flow at a considerable flow rate.

40. (original) The flow responsive valve according to Claim 40, wherein at the fully open state of the valve the plunger mates with the stationary cup member to form an egg-like shape.

41. (currently amended) A fluid metering system comprising a fluid supply line and a meter for measuring fluid flow therethrough, said meter comprising a fluid flow responsive impeller and having a minimum measuring flow threshold; the system further comprising a flow responsive valve having an inlet port and an outlet port; said valve being shiftable between an open position to measure consumed flow rates, which are above the minimum measurable flow threshold, and a pulsating position, in which said valve is adapted either to prohibit fluid flow to the fluid supply line until a pressure differential over the valve ports is being built-up due to consumed flow rates, which are below the measurable flow threshold or to admit fluid flow into the supply line, exclusive of use of an accumulator for boosting fluid flow through the valve,

until the pressure differential diminishes below a predetermined threshold, and said valve further comprising a suspension mechanism for delaying fluid flow through the valve when it admits the fluid flow.